GRADUATE STUDY GUIDELINES

A Collection of Department and University Regulations and Operating Procedures

Department of Chemistry
University of Nevada, Reno

Revised May 2018
This brochure is designed to present the most pertinent information on the courses, examinations, and other requirements in our graduate program. The Graduate School Catalog should be consulted for supplementary information. Students in the Chemical Physics program should also consult the Chemical Physics Guidelines.

Academic and Scientific Conduct Statement

Both departmental graduate students and faculty are expected to adhere to the highest professional and scientific standards and ethics, as described in the University Code of Conduct and Policies in the University of Nevada, Reno General Catalog, and The American Chemical Society’s Ethical Guidelines for the Publication of Chemical Research and Chemist’s Code of Ethics. In particular, all graduate students are responsible for conducting research and teaching activities with the utmost attention to safety, and for ensuring that all course and research activities are free from plagiarism of the works of others, falsification of data or results, or any other acts of academic dishonesty.

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A. PROGRAM DESCRIPTION

The Department of Chemistry at Nevada offers graduate degrees in Chemistry (MS and PhD) and Chemical Physics (PhD). The department hosts 65-75 graduate students that work towards their degree completion under the supervision of research-active faculty in their area of study.

1. Master’s (MS) Degree Program

The Department of Chemistry offers two M.S. degrees in Chemistry, a research-based Thesis Masters degree (Plan A), and a non-Thesis Masters Degree (Plan B). The general requirements of the Graduate School must be satisfied by all candidates for the M.S. degree with a major in chemistry.

30 units for Plan A, or 32 units for Plan B

Program Objectives/Student Learning Objectives (SLOs)

OUTCOME 1: THEORETICAL KNOWLEDGE

Students will possess:

- a broad factual knowledge at the advanced level in all subfields of chemistry (Physical, Inorganic, Organic, and Analytical).
- a deep factual and theoretical understanding of their area of specialization, including an awareness of modern research methods and technology, and problems of intense current interest.
- advanced cognitive skills in areas such as mathematics and physics that are necessary to understand and advance chemical theories.

OUTCOME 2: RESEARCH METHODS, PLANNING, AND EXPERIMENT DESIGN

Students will:

- independently design experiments to investigate scientific hypotheses.
- carry out experiments safely, using proper equipment and techniques.
- independently conduct analysis, along with evaluation of experimental or computational uncertainties and noise.
- interpret experimental results in the context of their uncertainties.

OUTCOME 3: LITERATURE RESEARCH AND COMMUNICATION SKILLS

Students will be able to:

- present their work by effective written communication in the form of scientific papers and reports, and by oral communication in the form of scientific seminars.
- train others in basic scientific knowledge and techniques and in advanced knowledge and techniques in their field of expertise.
- use scientific databases and the scientific literature to research a new topic.
- critically analyze and extract information from papers in the scientific literature.

OUTCOME 4: SCIENTIFIC CREATIVITY AND INDEPENDENCE

Students will:

- understand the societal and general scientific significance of their work.
- possess the ability to identify key issues within their research area and independently propose new research directions and meaningful, testable hypotheses.
- be able to draw from their general scientific training to synthesize new problem solving approaches.

1 https://catalog.unr.edu/preview_program.php?catoid=24&poid=17810
OUTCOME 5: PROFESSIONAL AND CAREER SUCCESS

Graduates will:
be successful in their professional careers as demonstrated by their abilities to solve
important chemistry problems, to solve problems in areas different from their training, and
to develop new and valuable ideas.
be able to work in a variety of professional environments as demonstrated by the abilities to
work both in teams and independently, to provide project leadership, to mentor junior co-
workers, and to communicate scientific results effectively to the chemistry community and
the public.
possess professional character as demonstrated by their ethical behavior, their pursuit of
continuing education and involvement in professional associations, and their commitment
to safety and protection of the environment.

Contact Information:
Robert S. Sheridan, Professor
Graduate Director Chemistry
Email: rss@unr.edu
Phone: (775) 784-6730

Note: This handbook lists graduate program academic policies and procedures. It includes
information on graduate school policies, degree requirements, timeline for degree
completion, committee selection guidelines and comprehensive exam/thesis requirements.
Every effort has been made to make this handbook accurate as of the date of publication;
however, this handbook does not constitute a contractual commitment. Graduate programs
may not offer all of the courses as described, and policies are subject to yearly review and
changes with program director and Graduate Council approval.

2. Ph.D. Degree Program
The Department of Chemistry offers a Ph.D. degree in Chemistry, and a separate Ph.D.
degree in Chemical Physics, administered jointly with the Department of Physics.
The general requirements of the Graduate School must be satisfied by all candidates for the
Ph.D. degree with a major in chemistry.

72 units

Program Objectives/Student Learning Objectives (SLOs)
- Theoretical knowledge
- Research methods, planning, and experiment design
- Literature research and communication skills
- Scientific creativity and independence

Contact Information:
Robert S. Sheridan, Professor
Graduate Director Chemistry
Email: rss@unr.edu

2 https://catalog.unr.edu/preview_program.php?catoid=24&poid=17841
3. **Ph.D. in Chemical Physics (interdisciplinary degree—refer to separate graduate handbook)**

The Ph.D. degree in chemical physics provides an interdisciplinary curriculum for those students whose primary research interests are in atomic and molecular physics and physical chemistry. While requiring the student to complete a rigorous selection of courses that outline the foundations of modern chemical physics, the program also offers extreme flexibility in the choice of dissertation topic as the student may choose any of the affiliated faculty in either the Department of Physics or the Department of Chemistry to serve as a research adviser. The program is offered by the College of Science.

72 units

**Program Objectives/Student Learning Objectives (SLOs)**

- Theoretical knowledge
- Research methods, planning, and experiment design
- Literature research and communication skills
- Scientific creativity and independence

**Contact Information:**

*Dr. David Leitner*, Director of the Chemical Physics Program

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**Phone:** (775) 784-1968

**Department contact:** [http://www.chemphys.unr.edu/](http://www.chemphys.unr.edu/)

**Phone:** (775) 784-6041

**B. ENTRY INTO THE GRADUATE PROGRAM IN CHEMISTRY**

An updated version of all forms can be found on the Graduate School Website under the Graduate Forms and Deadlines Webpage.

The Graduate Student Association (GSA) is also an incredibly useful resource. The purpose of the Graduate Student Association shall be to promote the welfare and interests of the graduate students of the University. This includes supporting GSA's Graduate Student Rights and Responsibilities document. The GSA defines a graduate student as any student enrolled in a graduate degree program as well as all students enrolled as graduate specials. The government of this GSA shall function through the Council of Representatives, Executive Council and established committees. The GSA shall work closely with all appropriate university administrative offices, including the Graduate School and Student Services. GSA shall report to the President of the University.

**Graduate School Academic Requirements**

All graduate students must maintain a cumulative graduate GPA of 3.0. If their GPA drops below 3.0, they are either placed on probation or dismissed. Undergraduate courses will not

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3 https://www.unr.edu/chemistry/degrees/graduate-resources/phd-chemical-physics
4 https://www.unr.edu/grad
5 https://www.unr.edu/grad/forms-and-deadlines
6 https://www.unr.edu/gsa
count towards graduate GPA.

**Probation:** students whose cumulative graduate GPA falls between 2.31 and 2.99 are automatically placed on academic probation for one semester. If they fail to raise their cumulative GPA to 3.0 by the end of one semester, they are dismissed from their graduate program. Thesis, dissertation, S/U graded credits, and transfer credits have no impact on a student’s GPA.

**Dismissal:** students whose cumulative graduate GPA is 2.30 or lower are dismissed. Dismissed students are no longer enrolled in their graduate program but may take graduate-level courses as a Grad Special. Dismissed students wishing to complete their degree must obtain approval to take graduate-level courses, raise their graduate GPA to at least 3.0, and then re-apply to their graduate program. Any courses taken in an effort to raise their GPA will be included in the graduate special/transfer credit limitation (9 credits for master’s degrees).

**Non-UNR Coursework**
These are credits transferred from another institution. Credits completed at UNR in another program or as a graduate special do not need to be transferred. Transfer credit can be requested on the Graduate Credit Transfer Evaluation Request form available on Graduate School website, and must be signed by the student, major advisor, and graduate director. Transfer credits applied to a master’s program must comply with the time limitation on master’s work (6 years). Thus, if a student took a course five years prior to admission, they would have to complete the degree within one year for the course to apply to the degree. Credits from a completed master’s degree will be exempt from the 8-year time limitation for those students pursuing a doctoral degree.

1. **Graduate Record Examination Scores and Transcripts**

Scores on the Graduate Record Examination (GRE) must be filed with the Graduate School by the student prior to admission to graduate standing. This is applicable to both M.S. and Ph.D. programs.

2. **Advisement Examinations**

Advisement exams in the areas of inorganic, organic, and physical chemistry are given to all entering graduate students prior to registration. They are used to assess each student’s background and to search out deficiencies in these areas so that more effective course advisement can be given. Students failing an advisement exam will be required to take the corresponding undergraduate course(s) and obtain a grade of B or better.

3. **Speak Test**

Foreign students, for whom English is not their native language, are required to take and pass the Speak Test administered by the Graduate School. *Those who do not pass this test may not serve as teaching assistants.* Failure to pass the test by the end of the Spring Semester of a students’ first full year of study may result in dismissal from the graduate program.

7 [http://www.unr.edu/Documents/graduate-school/GraduateCreditTransferEvaluationRequest.pdf](http://www.unr.edu/Documents/graduate-school/GraduateCreditTransferEvaluationRequest.pdf)
4. **First Semester Core Courses**

A series of “core courses,” CHEM 631 (Advanced Inorganic Chemistry), CHEM 642 (Advanced Organic Chemistry) and CHEM 650 (Advanced Physical Chemistry), are offered each Fall semester to aid entry into the graduate program. These courses are not designed to make up specific deficiencies in the student’s background, but are rather broad spectrum courses intended to introduce the student to advanced ideas in chemistry. All students must complete at least two of these courses, usually during their first Fall semester in residence, unless an outstanding performance on the corresponding advisement exam indicates the student has already achieved the necessary competency. Please refer to the university’s [General Course Catalogue](https://catalog.unr.edu) for the most up-to-date information.

5. **Choice of Research Advisor**

The M.S. (Plan A) and Ph.D. programs require a completed research thesis or dissertation, respectively. During the first semester in residence each student should consult with the various faculty members in his or her chosen field of specialization to choose a research advisor. These consultations should be arranged by the student, and generally involve discussion of the type of research programs of interest to the faculty member. Students are required to meet with at least four faculty, and solicit their signatures on the departmental “Application for Research Group Affiliation” form. After these consultations the student chooses a faculty member under whose direction he/she elects to pursue his/her research. The faculty member is asked by the student to serve as the student’s research director and advisor. Choice of a research director must be made by the end of this semester, and the completed form returned to the Graduate Director. Each student must select their Graduate Study Committee members and complete their Program of Study form in order to receive an S grade in their second semester CHEM 789 course.

6. **Advisory Committee**

After a student has chosen a research advisor, an Advisory Committee is to be formed. The student should be prepared to suggest members for the committee. The M.S. degree committees must have at least three members: the research advisor, another member of the department and one from outside the Department of Chemistry. Ph.D. degree committees must have at least five members: the research advisor, two other members of the Chemistry Department and two members from outside the department.

The student initiates the paperwork necessary to form this committee and the student’s advisor acts as its chairman. This committee is responsible

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8 [https://catalog.unr.edu](https://catalog.unr.edu)
for formally approving both the student’s program of study and the research thesis or dissertation. The appointment of this committee must be accomplished before the end of the second semester.

In case of interdisciplinary graduate programs, the Graduate School Representative cannot have a primary appointment in the same department (or other appropriate major unit) as the student's committee chair. Formal approval of all student advisory committees is made by the Graduate Dean.

For master’s and doctoral students, the completed form must be submitted to Graduate School by the end of the student’s second semester.

Forms and Resources:
Graduate Declaration of Advisor/Major Advisor/Committee Chair Form
Change of Advisory Committee

7. Program of Study

Students admitted to Graduate Standing must have their initial coursework approved by the Graduate Study Committee. An Advisory Committee must be established and an approved Program of Study submitted to the Graduate School no later than the end of the student’s second semester (for doctoral students, the completed form must be submitted to Graduate School by the end of the student’s fourth semester).

The Advisory Committee should be convened by the research advisor to discuss the student’s proposed program of study. Generally, the student and advisor work together to decide on the courses that will be taken by the student during his/her graduate program. These courses are selected to fit the student’s vocational objectives and provide background useful for research while at the same time meeting the requirements for the desired degree (see Sections C and D). The student will need to pick up the Study Program Forms from the Graduate School and have these forms filled out prior to meeting with the Advisory Committee. The student should arrange a suitable time and place for the meeting after consulting with committee members. The committee then meets with the student to discuss and approve the proposed program. As part of this meeting, the student might be asked to give a brief presentation describing the proposed research. This helps the committee become better acquainted with the student and allows it to better evaluate the proposed course of study.

Forms and Resources:
Program of Study Requirements

10 https://www.unr.edu/Documents/graduate-school/3change-of-advisory-committee.pdf
11 https://www.unr.edu/Documents/graduate-school/program-of-study.pdf
C. GENERAL REQUIREMENTS

1. Credit Hours

During the academic year, students on TA or RA contracts must be registered for at least six credits in a semester. The normal course load taken by students who are serving as regular Teaching Assistants is 9 to 12 credits. If not on an assistantship, graduate students must register for at least three graduate-level credits each semester until graduation.

2. Course Work Performance

1. UNR Overall Graduate Course
   GPA of 3.0 or Better ………………….. Good Standing

2. UNR Overall Graduate Course
   GPA Below 3.0 …………………….. Probationary Status

3. UNR Overall Graduate Course
   GPA Balance of Seven or More Grade Points Below 3.0…………….. Dropped from Graduate Standing

NOTE: Students must be in good standing to hold an assistantship.

3. Graduate Assistantships

All graduate students holding an assistantship (teaching GTA or GRA) are considered Nevada residents for tuition purposes. Non-resident tuition is only waived for the duration of the assistantship. To be eligible for an assistantship, students must be admitted to a degree-granting program and be in good academic standing. The student must have an overall GPA of at least 3.0 and must be continuously enrolled in at least 6 graduate level credits (600-700) throughout the duration of the assistantship.

State-funded assistantships (GTA/GRA) may be held for a maximum of: three (3) years for master’s degree students and five (5) years for doctoral degree students.

The most updated information on graduate assistantships from the Graduate School: General information and the Graduate Assistantship handbook.

4. Health Insurance

All domestic degree seeking graduate students, who are enrolled in six or more credits (regardless of the course level) in a semester, will be automatically enrolled and billed for the University sponsored health insurance for each term they are eligible (fall & spring/summer). If a student has other comparable coverage and would like to waive out of the student health insurance, it is the student’s responsibility to complete the University

https://www.unr.edu/Documents/graduate-school/2change-of-program-of-study.pdf
http://www.unr.edu/grad/funding/graduate-assistantships
http://www.unr.edu/Documents/administration-finance/hr/hr-graduate/GA_handbook.pdf
online waiver form 15 prior to the deadline. If approved, a health insurance waiver is good for the current academic year only. A new waiver must be submitted each academic year. All international graduate students are required to carry student health insurance, and the cost will be automatically added to your student account. Any international graduate students with insurance questions must contact the Office of International Students and Scholars (OISS) 16 directly. Information on Graduate health insurance 17.

5. Leave of Absence
Continuous Enrollment: To maintain “good standing” all graduate students are required to enroll in a minimum of three (3) graduate credits each fall and spring semester until they graduate. International students may be required to enroll in nine graduate credits each fall and spring semester depending on the requirements of their visa. All students holding assistantships (whether teaching or research assistantships) are required to enroll in a minimum of six (6) graduate credits each semester they hold the assistantship.

Leave of Absence: Students in good standing may request a leave of absence by completing a Leave of Absence form 18 during which time they are not required to maintain continuous registration. Usually, a leave of absence is approved for one or two semesters. The leave of absence request may be extended by the student filing an additional leave of absence form. Students applying for a leave of absence should not have any “incomplete” grades which could be changed to “F” and have a detrimental impact on their cumulative GPA. Requests for leave of absences must be received by the Graduate School no later than the last day of enrollment for the semester the leave is to begin.

Reinstatement: When a student has been absent for one semester or more without an approved leave of absence, he or she may request reinstatement via the Reinstatement form 19. This form allows the program the option to recommend the student be re-admitted to their graduate program based on their previous admission OR require the student to re-apply for admission which would require students to submit a new application for admission and pay the application fee. The Notice of Reinstatement to Gradate Standing must be received by the Graduate School no later than the last day of enrollment for the semester the reinstatement is to begin.

6. Cumulative Exams
In addition to the formal course work, a series of examinations known as cumulative exams 18 must be taken by all students. Eight of these are given each year, one each month from September through April. The exact requirements are listed under M.S. and Ph.D. programs (Sections C.2 and D.2). These exams test the student’s ability to understand and solve problems in chemistry, and integrate material from various courses, seminars and the current chemical literature. Copies of past cumulative examinations are on file in the library. Separate exams covering the areas of inorganic, organic and physical chemistry are offered at each sitting. Cumulative exams may be taken in any of these three areas and a passed
exam will count as a pass without regard to the subdivision or the student’s major area.

Cumulative examination results are acceptable for a period of 3 years for the M.S. and 4 years for the Ph.D. degree following the end of the semester in which the cumulative examination requirement was fulfilled. *If not all of the requirements for the degree are completed within the time period during which the cumulative exam results are acceptable, the student must begin retaking them.* The M.S. candidate must retake them until 2 are passed, and the Ph.D. candidate, until 4 are passed.

7. **Seminars**

Students are also required to participate in the seminar program. This means attending both student seminars and seminars presented by visitors to our department. Candidates for the M.S. or Ph.D. degree must give a minimum of 2 seminars (see Sections C.3 and D.3).

8. **Teaching**

It is also a requirement of the department that all graduate students have some teaching experience as part of their advanced degree requirements. All first year T.A.’s must take CHEM 700 – Supervised Teaching in College Chemistry.

9. **Time Limitation for Completion of Advanced Degrees**

a. All requirements for the master’s degree must be satisfied within the period of six calendar years immediately preceding the granting of the degree. All requirements for the doctoral program, excluding prerequisite graduate course work or master’s degrees, must be completed within eight years from the time of admission. It should be noted that the average M.S. degree in Chemistry takes no more than three years, and the Ph.D. five years. **Be sure to consult the Departmental time limits on cumulative examinations (3. above).**

b. Students must register for an appropriate course load each semester, or obtain an “approved leave” from the department. Unless these approved leaves are part of the student’s Graduate School records, extensions of the six and eight year requirements will not be approved by the Graduate School.

6. **Graduate-level Courses in Chemistry** (check out the [Course Descriptions](https://catalog.unr.edu/content.php?filter%5B27%5D=CHEM&filter%5B29%5D=&filter%5Bcourse_type%5D=-1&filter%5Bkeyword%5D=&filter%5Bcpage%5D=1&cur_cat_oid=13&expand=&navoid=3723&search_database=Filter&filter%5Bexact_match%5D=1#acalog_template_course_filter&ga=2.56927470.596197726.1515436406-1916886029.1499968381) page in

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20https://catalog.unr.edu/content.php?filter%5B27%5D=CHEM&filter%5B29%5D=&filter%5Bcourse_type%5D=-1&filter%5Bkeyword%5D=&filter%5Bcpage%5D=1&cur_cat_oid=13&expand=&navoid=3723&search_database=Filter&filter%5Bexact_match%5D=1#acalog_template_course_filter&ga=2.56927470.596197726.1515436406-1916886029.1499968381
the catalogue for full links and course information)

- CHEM 631 - Advanced Inorganic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 635 - Chemical Synthesis (Permissable “Required” or “Elective” Course)
- CHEM 637 - Separation Chemistry and Metallurgy of the Rare Earths (Permissable “Required” or “Elective” Course)
- CHEM 639 - Green Chemistry and Sustainability (Permissable “Required” or “Elective” Course)
- CHEM 642 - Advanced Organic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 643 - Organic Spectroscopy and Structure (Permissable “Required” or “Elective” Course)
- CHEM 644 - Organic Structure Determination Laboratory (Permissable “Required” or “Elective” Course)
- CHEM 649 - Polymer Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 650 - Advanced Physical Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 651 - The Elementary Physical Chemistry of Macromolecules (Permissable “Required” or “Elective” Course)
- CHEM 655 - Instrumental Analysis (Permissable “Required” or “Elective” Course)
- CHEM 690 - Independent Study in Chemistry (Permissable “Elective” Course)
- CHEM 692 - Advanced Topics in Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 700 - Supervised Teaching in College Chemistry
- CHEM 707 - Research Instruments Practicum (Permissable “Elective” Course)
- CHEM 711 - Theoretical Inorganic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 712 - The Less Familiar Elements (Permissable “Required” or “Elective” Course)
- CHEM 713 - Organometallic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 714 - Special Topics in Inorganic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 740 - Methods of Organic Synthesis (Permissable “Required” or “Elective” Course)
- CHEM 741 - Advanced Organic Structure Elucidation (Permissable “Required” or “Elective” Course)
- CHEM 742 - Theoretical Organic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 743 - Special Topics in Organic Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 744 - Stereochemistry and Conformational Analysis (Permissable “Required” or “Elective” Course)
- CHEM 745 - Strategy of Organic Synthesis (Permissable “Required” or “Elective” Course)
- CHEM 751 - Special Topics in Physical Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 752 - Chemical Kinetics (Permissable “Required” or “Elective” Course)
- CHEM 754 - Molecular Spectroscopy (Permissable “Required” or “Elective” Course)
- CHEM 755 - Statistical Thermodynamics (Permissable “Required” or “Elective” Course)
- CHEM 757 - Quantum Chemistry (Permissable “Required” or “Elective” Course)
- CHEM 788 - Research Conference (Permissable “Elective” Course)
- CHEM 789 - Graduate Seminar I
- CHEM 790 - Graduate Seminar II
- CHEM 791 - Professional Paper
- CHEM 793 - Independent Studies (Permissable “Elective” Course)
- CHEM 794A - Colloquia (Permissable “Elective” Course)
- CHEM 794B - Colloquia (Permissable “Elective” Course)
- CHEM 794C - Colloquia (Permissable “Elective” Course)
- CHEM 795 - Comprehensive Examination
- CHEM 797 - Thesis
- CHEM 799 - Dissertation
• CHEM 899 - Graduate Advisement
D. REQUIREMENTS FOR THE M.S. DEGREE

1. **Minimum Credit Requirements:** (Plan A with thesis) the credit requirements for the M.S. degree are listed below.

   **Course – Credit Distribution**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses (2 Chosen from CHEM 631, 642, and 650)</td>
<td>6(^a)</td>
</tr>
<tr>
<td>Other required courses</td>
<td>9(^b)</td>
</tr>
<tr>
<td>Electives</td>
<td>5</td>
</tr>
<tr>
<td>Graduate Seminar I (CHEM 789)</td>
<td>1(^c)</td>
</tr>
<tr>
<td>Graduate Seminar II (CHEM 790)</td>
<td>2</td>
</tr>
<tr>
<td>Thesis (CHEM 797)</td>
<td>6</td>
</tr>
<tr>
<td>Teaching College Chem (CHEM 700)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Required Credits</strong></td>
<td><strong>30(^d)</strong></td>
</tr>
</tbody>
</table>

\(^a\) Students who demonstrate proficiency on the qualifying exam in an area of chemistry may be exempted from taking the corresponding core course; electives will be substituted.

\(^b\) Required courses are 600- or 700-level formal classroom or laboratory courses approved by the student’s advisory committee.

\(^c\) For completing Program of Study second semester.

\(^d\) The Graduate School requires a minimum of 18 credit hours (including thesis) at the 700 level for the M.S. degree.
Minimum Credit Requirements: (Plan B without thesis) the credit requirements for the M.S. degree are listed below.

Course – Credit Distribution

Core courses (2 Chosen from CHEM 631, 642, and 650) .............. 6^a
Other required courses ................................................................. 15^b
Electives .............................................................................................. 7
Graduate Seminar I (CHEM 789)........................................................ 1
Graduate Seminar II (CHEM 790)......................................................... 2
Professional Paper (CHEM 791) ....................................................... 1
Total Required Credits .................................................................... 32^c

^a Students who demonstrate proficiency on the qualifying exam in an area of chemistry may be exempted from taking the corresponding core course; electives will be substituted.

^b Required courses are 600- or 700-level formal classroom or laboratory courses approved by the student’s advisory committee.

^c The Graduate School requires a minimum of 18 credit hours at the 700 level for the M.S. degree.

2. Cumulative Examinations

Eight cumulative examinations are given each year, one each month from September through April. A list of exam dates will be given to each student early each year. Students must begin taking cumulative exams immediately upon entry into the Graduate Program. The cumulative examination requirement is satisfied by passing two cumes at the M.S. level out of twelve attempts. **Cumulative examination results are acceptable for a period of three years for the M.S. degree following the end of the semester in which the cumulative examination was fulfilled (see B.3).**

A student must take each examination until he or she has passed two or taken all twelve. Students will be excused from an exam only if they have a legitimate excuse approved by the Director of Graduate Studies. Exams taken after this requirement is fulfilled will not be graded. If a student wishes to change to the Ph.D. program, which requires extra cumulative exams, the student must inform his or her research advisor and obtain approval from the faculty and Graduate Dean for the change in degree status prior to taking additional exams.

3. Seminar Requirements
All students pursuing a M.S. degree are required to give two seminars and obtain at least a B grade in each. The second should be on the student’s thesis research. The student should register for the first seminar no later than the fourth semester in graduate school. He or she should consult with the faculty member in charge of seminars to get an idea of what is expected and obtain a copy of the “Seminar Guidelines” from the Department office. The final M.S. seminar should be scheduled to coincide with the final oral examination (see C.5).

4. Admission to Candidacy

Admission to Candidacy is for doctoral students who have completed all requirements except for the dissertation. The student must initiate this procedure using forms obtained from the Graduate School, such as the Doctoral degree admission to candidacy form. This is usually done in the second or third semester of the program. Consult the University Catalog under Graduate School for details.

5. Approval of Thesis and Final Examination

After completion of a thesis, the student is required to present and defend it to his/her Advisory Committee. Consult the University Catalog for information about thesis format, dates of submission, number of required copies, etc. In addition to the electronic copy required by the graduate school, each student shall submit two paper copies suitable for binding (acid-free/20 # bond paper, 1.5” left margins) to the Chemistry Department office. The department will pay for binding the copies for the office and the library. If you wish to have additional copies bound at the same time at your expense, we will try to accommodate that. A draft of the thesis should be given to members of the examining committee prior to final printing so that corrections and suggestions can be incorporated.

The completed, unbound thesis must be submitted to the committee at least one week and preferably two weeks before the final examination. The meeting in which the thesis is discussed also serves as the Final (oral) Examination. Therefore, the student may be asked questions of a general nature not related to the thesis work; nevertheless, the emphasis is generally on questions related to the thesis. The final M.S. seminar should be scheduled for the same day as the final examination.

Filing your master’s thesis at the Graduate Division is one of the final steps leading to the award of your graduate degree. Your manuscript is a scholarly presentation of the results of the research you conducted. University of Nevada, Reno upholds the tradition that you have an obligation to make your research available to other scholars. This is done when the Graduate School submits your manuscript to the University Library.

**Master’s Thesis Filing Guidelines**

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21 [https://www.unr.edu/Documents/graduate-school/17doctoral-degree-admission-to-candidacy-updated.pdf](https://www.unr.edu/Documents/graduate-school/17doctoral-degree-admission-to-candidacy-updated.pdf)

6. **Change from the M.S. to the Ph.D. Program**

A student wishing to change from the M.S. to the Ph.D. program must first inform his research advisor of this intention. The research advisor, with the approval of the Chemistry faculty, then initiates the necessary paperwork through the office of the Dean of the Graduate School. This includes increasing the size of the Advisory Committee from three to five members. All past cumulative exams, both passes and failures, are carried forward to the new degree program.

E. REQUIREMENTS FOR THE Ph.D. DEGREE

1. **Minimum Credit Requirements**: The credit requirements for the Ph.D. degree are listed below.

   **Course – Credit Distribution**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses (2 Chosen from CHEM 631, 642, and 650)</td>
<td>6</td>
</tr>
<tr>
<td>Other required courses</td>
<td>15</td>
</tr>
<tr>
<td>Electives</td>
<td>22</td>
</tr>
<tr>
<td>Seminar (CHEM 790)</td>
<td>2</td>
</tr>
<tr>
<td>Seminar (CHEM 789)</td>
<td>1(S/U)</td>
</tr>
<tr>
<td>Dissertation (CHEM 799)</td>
<td>24</td>
</tr>
<tr>
<td>Teaching College Chemistry (CHEM 700)</td>
<td>1(S/U)</td>
</tr>
<tr>
<td>Comprehensive Exam (CHEM 795)</td>
<td>1(S/U)</td>
</tr>
<tr>
<td><strong>Total Required Credits</strong></td>
<td>72</td>
</tr>
</tbody>
</table>

   - (a) Students who demonstrate proficiency on the qualifying exam in an area of chemistry may be exempted from taking the corresponding core course; electives will be substituted.
   - (b) Required courses are 600- and 700-level formal classroom or laboratory courses approved by the student’s advisory committee.
   - (c) Electives for Ph.D. have the following limits: 12 maximum credits of independent studies (CHEM 793), 3 maximum credits of CHEM 707, 8 maximum credits of CHEM 788, and 14 maximum credits of Dissertation (CHEM 799, in addition to the required 24 credits). Also, because the Graduate School permits a maximum of 9 S/U credits, only 5 credits of colloquium (CHEM 794) may be applied toward the Ph.D. However, we recommend that students enroll in 1 credit of colloquium each semester.
   - (d) For completing Program of Study second semester.
   - (e) The Graduate School requires a minimum of 30 credit hours (exclusive of Dissertation) at the 700 level, and permits a maximum of 9 S/U credits to be applied toward the Ph.D. degree.
2. **Cumulative Examinations**

Eight cumulative examinations are given each year, one each month from September through April. A list of exam dates will be given to each student early each year. Students must begin taking cumulative exams immediately upon entry into the Graduate Program. Students are excused from a cumulative exam only if there is a legitimate excuse approved by the Director of Graduate Studies. A Ph.D. candidate must pass 5 exams at the Ph.D. level. Students having a M.S. degree in Chemistry are given 16 chances while those students without a M.S. have up to 20 attempts. Candidates must pass at least two of the first 12 examinations.

*Cumulative exams are acceptable for a period of 4 years for the Ph.D. degree following the end of the semester in which the cumulative examination requirement was fulfilled. (See B.3)*

The cumulative examination serves the role of the written portion of the comprehensive examination.

3. **Seminar Requirements**

Students are expected to give their first seminar no later than their fourth semester in graduate school. The second seminar should be given no later than the fifth semester in graduate school. The first seminar is given on a literature topic chosen from a list provided by faculty. The second seminar is a midstream research progress report covering work completed and work to be done on the student’s research project(s) and background literature. A B is the minimum acceptable grade for satisfying each seminar requirement. Students should consult with the faculty member in charge to get an idea of what is expected. They should also read carefully the “Seminar Guidelines” obtainable in the department office. The members of the students’ Graduate Study Committee must be invited to attend the research progress seminar (CHEM 790) given during the students’ third year in the graduate program.

A final public presentation of the Ph.D. research may and often is given the same day as the Final (oral) Examination just preceding the examination. This seminar is optional.
4. Oral Comprehensive Examination

The oral portion of the Comprehensive Examination must be taken by the end of the student’s sixth semester. The exam must be taken no later than eight calendar months before the date of graduation. It may be taken after a minimum of 75% of the required course work beyond the baccalaureate is completed.

The oral portion of the Comprehensive Examination must be taken by the end of the student’s sixth semester. The exam must be taken no later than eight calendar months before the date of graduation. It may be taken after a minimum of 75% of the required course work beyond the baccalaureate is completed.

As part of the Comprehensive Examination, each student is required to prepare an original research proposal that is submitted to the members of the Advisory Committee at least one week prior to the examination. The proposal is subject to the following stipulations:

a) The scope of the proposal is to be approximately equivalent to that of ACS Petroleum Research Fund New Investigator Grants, which are routinely submitted as “starter grants” for new academic faculty. See the department office for further guidelines, suggestions, and examples.

b) At the discretion of the student and research advisor, the proposal may be based on any research problem, either related or unrelated to the student’s dissertation project. Regardless of topic, the proposal should demonstrate the student’s ability to create independent ideas, formulate workable research goals, and show scientifically mature writing. Copies of some past proposals are available in the department office.

The requirement of the research proposal does not in any way restrict the questions that might be asked at the Oral Comprehensive Examination. The exam is intended to test the student’s mastery of a broad range of knowledge. The student is subject to any question deemed appropriate by any member of the Advisory Committee. Nevertheless, the proposal is generally the forum and focus of the examination, and usually most questions are associated with it.

Comprehensive Examinations will be assigned a graduate course number (CHEM 795) for 1 credit on a S/U basis. Students will register for the Comprehensive Examination course at the beginning of the semester in which the exam is to be taken. A grade of Unsatisfactory (“U”) or Incomplete (“I”) must be improved to a grade of Satisfactory (“S”) during the next semester or the student will be dropped from Graduate Standing.

The student should apply for admission to candidacy immediately after passing the Comprehensive Examination. If more than one negative committee vote is cast, the examination is failed. In case of failure the examination may be retaken,
provided the Advisory Committee feels that additional study is justified. The Advisory Committee may also ask the student to revise his or her research proposal or to submit another if the proposal is judged unsatisfactory.

5. Admission to Candidacy

The student must initiate this procedure using forms obtained from the Graduate School. This is done after successful completion of the Comprehensive Examination. In any event, the application for admission to candidacy must be made no later than eight calendar months before the date of graduation. Consult the University Catalog for further details, especially concerning the time limit on Candidacy.

6. Approval of Dissertation and Final Examination

After completion of a dissertation, the student is required to discuss it and defend it to his Advisory Committee. Consult the University Catalog for information about dissertation format, dates of submission, number of required copies, etc. Students should also consult the departmental Graduate Secretary for the most current departmental dissertation requirements. A draft of the dissertation should be given to members of the examining committee prior to final printing so that corrections and suggestions can be incorporated before final printing; the completed, unbound dissertation must be submitted to the committee at least one week and preferably two weeks before the final examination. The meeting in which the dissertation and related topics are discussed is the Final Examination. The examination is wholly oral. Consult the University Catalog for other details.

Filing your doctoral dissertation at the Graduate Division is one of the final steps leading to the award of your graduate degree. Your manuscript is a scholarly presentation of the results of the research you conducted. The University of Nevada, Reno upholds the tradition that you have an obligation to make your research available to other scholars. This is done when the Graduate School submits your manuscript to the University Library UMI Dissertation Publishing Service. However, you may request that your dissertation is forwarded as soon as the degrees have been awarded.

Doctoral Dissertation Filing Guidelines 24
(Doctoral students only) Dissertation Title Form 25
Doctoral Final Review Approval 26

F. GRADUATE STUDENT EVALUATION PROCEDURES

Graduate students in both the M.S. and Ph.D. programs are evaluated yearly by the Chemistry faculty to assess progress toward completion of requirements, including

24 http://www.unr.edu/grad/forms/dissertation-filing-guidelines
especially research, but also course work and TA performance. The purpose of these evaluations is to determine the candidate’s overall fitness for his/her chosen program. In addition, the evaluations should bring out any areas of unsatisfactory progress so that the student can be made aware of them.

G. TIMETABLE OF EVENTS

This timetable is a schedule of times for completion of the requirements for the Ph.D. degree within four years, or M.S. degree in two years, and is intended as a guide to the faculty in measuring progress. It should be noted that the Timetable is meant to be an appropriate time schedule of events – a goal to aim for – and not a schedule of firm deadlines for completion of requirements. It is recognized that it may not be possible to adhere to the schedule because of circumstances such as difficulty in
scheduling classes or entering the program with deficiencies. However, serious deviation from the schedule may be an indication of unsatisfactory progress.

1. For students in Ph.D. program entering with a Bachelor’s degree; recommended schedule for 4-year program:

A. The following must be accomplished by the end of the first year of graduate study:

(1) Take advisement examinations before registration.

(2) Choose a research director the first semester and develop a graduate program in consultation with the Advisory Committee before the end of the second semester.

B. The following three items should be accomplished by the end of the second year of graduate study:

(1) Present first seminar by end of Spring semester.

(2) Complete course work.

(3) Pass two cumulative examinations out of first 12 (and 5 by end of 2nd year if already holding M.S., or else by mid-3rd year).

Along with the completion of these requirements, some definite progress in dissertation research must be made by the end of the second year.

C. The following two items must be accomplished by the end of the third year of graduate study:

(1) Present second seminar on research progress by end of Fall semester.

(2) The Comprehensive Examination must be taken by the end of the Spring semester. Application for admission to candidacy should be filed immediately after the Comprehensive Examination has been passed and other degree requirements have been completed. By the end of the fifth semester the student has spent two summers and one semester fully and three semesters partly on the dissertation research. Thus, significant progress in research work should have been made by this time.

D. The completion of research and writing of the dissertation should be made during the fourth year. The final examination should be completed shortly
after the dissertation has been written. This examination should be completed not later than the end of the fourth year.

2. For students in the **M.S. program**: recommended schedule for 2-year program:

   A. The following must be accomplished by the end of the first year of graduate study:
      
      (1) Take registration examinations before registration.
      
      (2) Choose a **research director** the first semester.
      
      (3) Develop a graduate program in consultation with the Advisory Committee before the end of the second semester.

   B. The following items should be accomplished by the end of the second year of study:
      
      (1) Complete course work.
      
      (2) Pass two cumulative examinations at M.S. level out of 12 total.
      
      (3) Present CHEM 790 literature seminar
      
      (4) Complete research and write thesis.
      
      (5) Present CHEM 790 thesis seminar, and pass Final Oral examination.

H. Completion of Degree

   **Graduation Application deadlines**

   Must be submitted to the graduate school several weeks in advance. Check website for exact dates

   Notice of completion – completed form should be submitted after all requirements have been met.

   **Master’s form**
   **Doctoral form**

   **Exit Survey**

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27 [https://www.unr.edu/grad/graduation-and-deadlines](https://www.unr.edu/grad/graduation-and-deadlines)
28 [https://www.unr.edu/Documents/graduate-school/notice-of-completion-master-degree-updated.pdf](https://www.unr.edu/Documents/graduate-school/notice-of-completion-master-degree-updated.pdf)
29 [https://www.unr.edu/Documents/graduate-school/notice-of-completion-doctoral-degree.pdf](https://www.unr.edu/Documents/graduate-school/notice-of-completion-doctoral-degree.pdf)
30 [https://www.unr.edu/grad/forms-and-deadlines/exit-survey](https://www.unr.edu/grad/forms-and-deadlines/exit-survey)